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One-, two-, and three-dimensional ising model in the static fluctuation approximation

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Abstract

Viewed as a prototype for strongly interacting many-body systems, the spin-1/2 n-dimensional Ising model (n = 1, 2, 3) is studied within the so-called static fluctuation approximation (SFA). The underlying physical picture is that the local field operator σz f with quadratic fluctuations is replaced with its mean value [(σz f)2 ≅.